Remarks:

It is submitted, the changes presented hereinabove render the application allowable and, therefore, acceptance/formal entry of this Amendment is respectfully requested.

The Specification was amended to update the data regarding the related applications referred to on page 1 of the Specification and to correct several grammatical informalities.

The only outstanding issues regarding the claimed subject matter involve an objection to claim 67 as well as a rejection of all of the claims, i.e., claims 39-67, under 35 USC §112, second paragraph, for the reasons as detailed beginning on page 3 of the standing Final Office Action. In consideration of an extensive review of the pending claimed subject matter as well as the Specification and drawings, a number of revisions are currently made in the claims in consideration of removing any and all previously raised matters with regard to the objection and rejection as well as revisions to further clarify the subject matter being covered by these claims including in a manner in which, it is submitted, renders them allowable. Details of the amendments currently made to the claims are discussed below.

With the above amendments, claims 39-45 and 47-67 remain pending of which claims 39-42, 44-45, 47-56 and 58-67 are currently amended. Claim 46 is now canceled.

Although it appears that a large number of revisions were implemented in the claims, they are mainly a re-presenting of previously existing language in a manner which more clearly defines the invention (intended to be covered) as well as avoid any previously rendered concerns directed thereto, regarding questions of definiteness such as detailed with regard to the outstanding rejection.

As to independent claim 67, the objected to expressions with regard to the "first step" in the "method for producing a semiconductor device" are being re-presented in a manner conforming to the requirements set forth in the appropriate subparagraphs pertaining to §112 of The Patent Act. Namely, the previously set forth recitations associated with the "first step" are now covered by the first and second steps of the method, the "first step" relating to the forming of a "first electrically insulating layer" (e.g., protective film 8 in Fig. 1, etc.) and the "second step" of the method sets forth the forming of a "second electrically insulating layer" (e.g., stress relaxation layer 5 in Figs. 1, 5, etc.). The forming of the "second electrically insulating layer" (e.g., 5), involves a process calling for the "second electrically insulating layer" to be mask printed such as set forth with regard to the first "wherein" clause involving the second step of the method according to claim 67. The language in this "wherein" clause is, basically, a re-presenting of the related portion previously covered under the "first step" in the method and "wherein" clause at the end of claim 67. The additional aspect related to the [second] electrically insulating layer "functioning to relax occurrence of stress ..." is now being re-presented with regard to the second "wherein" clause of the second step of the method, in amended claim 67.

As to the "method" now recited in the claims, there should now be no confusion between the second electrically insulating layer being formed and the component material that is used in the formation thereof. Clarifications of a similar nature were effected in connection with each of the independent claims 39, 53, 65, 66 and 67 as well as with regard to the corresponding dependent claims thereof, as deemed appropriate.

With respect to independent claims 39, 53, 65, 66 and 67, the first and second

steps in the method for producing a semiconductor device are now being re-presented as the first, second and third steps in the method including in a manner which avoids each and all previous concerns directed thereto such as that noted under item 4, beginning on page 3 of the Final Office Action. With regard to independent claim 39, for example, the invention now specifically distinguishes between an electrically insulating layer (e.g., 8) formed on the wafer and a "second electrically insulating layer" (e.g., stress relaxation layer 5), thereon, the latter having an inclined portion and a flat portion. Consistent with the drawing illustrations such as in Fig. 1, etc., although not limited thereto, the first electrically insulating layer is formed on the wafer (e.g., on a principal surface thereof) and is such that it covers a periphery portion of the circuit electrode (e.g., pad 7). The previously existing language related thereto has now been accordingly revised to clarify this featured aspect. Also, in view of the revisions implemented with regard to the language in the "first step", the expression "provided on said wafer" was accordingly deleted. Likewise, the expression "remaining exposed from the electrically insulating layer," which is intended to relate to a portion of the circuit electrode on the wafer not covered by the first electrically insulating layer has been accordingly revised to the expression said first electrically insulating layer covering a periphery portion of said circuit electrode, consistent with that shown in Fig. 1., etc., although not limited thereto. With regard to this, it is noted that the example embodiment shown in Fig. 1 of the drawings has a pad 7 on the wafer 9 that is covered at a periphery portion thereof by the protective film 8 (or "first electrically insulating layer" of the invention).

As to the step for forming a wiring (e.g., 4 in the example Fig. 1 embodiment), this has now been clarified in the setting forth of the third step according to the now amended independent claim 39. As can be seen from the example showing in Fig. 4

of the drawings and the related description (covering the steps shown in Fig. 4, for example, although not limited thereto), the method calls for the forming of a wiring on the inclined portion and the flat portion of the second electrically insulating layer (e.g., 5), in which the wiring portion at the inclined plane is electrically connected to the wiring portion at the flat portion of the stress relaxation layer. It is submitted, the respective component elements of the method according to independent claim 39 are clearly set forth, in keeping with the specific requirements of the appropriate subparagraphs under §112. In view of the re-presenting of the first and second steps according to the method of claim 39 as three separate steps in the method, the originally set forth "third step" has now been re-presented as the fourth step, which concerns the forming of the external connection terminal (e.g., see the connection of the bump in Figs. 1 and 5 of the drawings, etc.). With regard to the wiring portion on the inclined plane and that on the flat portion of the second electrically insulating layer, the electrical connection may be effected through the formation of a single contiguous wiring such as that shown with regard to redistributing wire 4 in Figs. 1, 4, 12, 14, 15, 16, etc. Like clarifying revisions as that discussed above, where applicable, were also effected in connection with independent claims 53, 65, 66 and 67. Attached **Sketch A,** which relates to Fig. 1 of the drawings, is an example showing of the component parts being formed according to the method for producing a semiconductor device as that called for in claims 39+, etc.

Other revisions were also implemented with regard to claims 39+, 53+, 65+, 66 and 67, the understanding of which should be clearly apparent from a careful reading of the clarifying revisions implemented therein. For example, a featured aspect calling for the mask printing of the "second electrically insulating layer" (e.g., 5) is now more clearly set forth in various ones of the independent and dependent

claims. An example of this is given with regard to the illustrated "third step" in Fig. 3 of the drawings, which is discussed beginning on page 24 and described more extensively on pages 26, line 1+; on page 28, line 12 to page 35, line 24, in which the formation thereof also leads to control of the protrusive portion of the stress relaxation layer. With regard to the protrusive portion, related discussion is found on pages 31 and 32 of the Specification as it relates to the manufacture of the example embodiment shown in Figs. 1 of the drawings, although other ones of the disclosed embodiments also employ a protrusive portion.

With regard to the formation of the "second electrically insulating layer" through a mask printing scheme, the method calls for the second electrically insulating layer to be formed by printing an electrically insulating material including particles on the first electrically insulating layer with a mask (see the third step in Fig. 3 of the drawings and Figs. 6-8 related thereto and the related discussion on page 26, line 1+ and page 28, lines 12-26, of the Specification, the latter relating to the use of component material in forming the stress relaxation layer (or "third electrically insulating layer"). Additional example discussion is given on page 64, paragraph 3, through page 65, paragraph 2, of the present Specification. Regarding the use of a mask with openings and a squeegee in the mask printing process in connection with the forming of the "second electrically insulating layer," (e.g., stress relaxation layer 5), Figs. 6-8 shows an example illustration thereof related to the present invention, in which related discussion thereof is found beginning on page 26, line 1, of the Specification.

As can be seen from the discussion related to Figs. 6 and 7 of the drawings, in which Figs. 7 shows an example of paste printing in connection with the forming of the stress relaxation layer 5, it is noted that the squeegee is moved along a diagonal

direction of an opening portion (e.g., 28) of the mask. In order to see this process more clearly, see **Sketch B** attached hereto which typifies the movement of the squeegee taken from a top view which relates to that effected according to Fig. 7 of the drawings, which is a side view of the movement being effected in connection with the metal mask shown in Fig. 6 of the drawings. With regard to the example shown in Fig. 6 of the drawings in the mask printing process, each pattern opening is filled with insulating material including particles (see the discussion on page 7, lines 8-12; page 28 and 64 of the present Specification as example discussion thereof.)

Major aspects of the mask printing (the screen printing) according to the present claimed subject matter include the following: (a) forming a thick stress relaxation layer; (b) forming a stress relaxation layer by controlling the formation of the inclined portion; and (c) forming a stress relaxation layer in the single step at a relatively low cost compared with that employing photolithography. These main featured aspects are discussed extensively in the Specification. Example discussion directed to the above is found in the following locations: page 7, line 8, to page 8, line 6; page 26, line 1 to page 28, line 6; page 28, lines 12-26; page 30, line 27, to page 31, line 25; page 54, line 10 to page 55, line 4; page 79, line 28 to page 80, line 10, etc., in the Specification.

According to claim 41 (dependent on claim 39) and claim 55 (dependent on claim 53), the second electrically insulating layer (e.g., stress relaxation layer 5) is composed of electrically insulating material including particles, the material of the particle being substantially the same as the material for forming the "second electrically insulating layer" (e.g., 5). According to the present invention, the electrically insulating material includes in the mixture particles in the forming of the second insulating layer (e.g., 5), the particles being substantially made of the same

material as that constituting the electrically insulating layer. These particles are included in the electrically insulated material so that the viscoelasticity, etc., of the material is controlled, especially, in controlling the formation of the inclined portion of the stress relaxation layer. For example, the material that may be used for forming the stress relaxation layer is polyimide paste, which can be cured during heating after it is mask printed on the protective film 8. For example, the polyimide paste contains a polyimide precursor, a solvent, and a large number of polyimide fine particles disbursed in a solvent. The viscoelasticity of the material employed can be adjusted by controlling the dispersion of the polyimide fine particles in the polyimide paste. Thus, a paste having excellent printability characteristics can be effected for use in the mask printing process according to the present invention. The thixotropy of the paste can be controlled by adjustment of the mixture proportion of the fine particles. Hence, printability can be improved simply through adjustment of the blend proportion of the fine particles in the material in combination with the adjustment of viscosity. Moreover, the inclination angle on the edge of the stress relaxation layer 5 can also be adjusted accordingly. An example discussion regarding this is given on page 28, line 12, to page 32, line 4, of the Specification.

The invention according to claim 52 (dependent on claim 39) and claim 64 (dependent on claim 53) calls for, in effect, the forming of a stress relaxation layer by use of mask printing. In this regard, after the mask for printing is removed from the wafer, the insulating material of that already filled in the holes of the mask is overspread. Accordingly, it is required that size of the opening portion in the mask be necessarily smaller than the actual area on the device covered by the stress relaxation layer. For example, in the case where the printing method is used for forming the stress relaxation layer, the stress relaxation layer is formed to include an

inclined portion such as at an edge portion (of the print portion) when the electrically insulating material is printed and the print mask is removed or when the electrically insulating layer becomes fluidized at the end portion of the print portion in a heat-curing process. According to this method, the stress relaxation layers and the end portions (edge portions) having a specific inclination can be formed collectively on a wafer. As a result therefor, the stress relaxation layer, which has an inclined portion as well as a flat portion, is formed with high precision. An example related discussion of this is given on page 26, lines 8-11 and on page 79, last line, to page 80, line 10, of the Specification. In order to see this more clearly, see **Sketch C** of Attachment 2.

According to the invention set forth in claim 50 (dependent on claim 39) and claim 62 (dependent on claim 53), the mask printing process calls for use of a squeegee to be moved along a diagonal direction of an opening portion in the mask, thereby the electrically insulating layer is formed in a manner which also prevents any voids on the insulating layer. As shown in the example illustration in Fig. 6 of the drawings, the example metal mask is composed of a combination including a stencil 25 of a nickel alloy which is adhered to a frame 27 via a resin sheet 26 and includes an opening portion 28. Because the paste is spread out by about 50 micrometers after printing, for example, a pattern opening portion 28 of the print mask is made relatively smaller to that of the area covered by the spread (polyimide) paste. A paste printing is performed as shown in Fig. 7 of the drawings, that is, the print mask and the pattern of the wafer 9 (having semiconductors formed thereon) are brought into contact with each other in accordance with an aligned state condition. Under this state, a squeegee is used and is moved along the stencil 25 so as to fill the pattern opening portion 28 with the paste. After this, the print mask is lifted up

relative to the wafer 9. That is, a contact printing is performed, as discussed above. Incidentally, the contact between the wafer and the print mask does not always mean that there is no screen gap between the two (see Figs. 8-10). An example related discussion regarding the invention called for in claims 52 and 62 and, correspondingly, elsewhere in the present claimed subject matter, is given on pages 26-27, which was also mentioned earlier in these remarks.

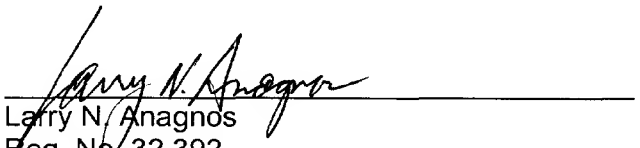
It is submitted, each and every previously outstanding matter raised in connection with the standing objection as well as the rejection under 35 USC §112, second paragraph, has been addressed by the amendments presented hereinabove in conjunction with the supportive discussion in these remarks. It is submitted, also, claims 39+, 53+, 65, 66 and 67 particularly point out and distinctly claim the subject matter regarding the present invention. As was shown hereinabove, although not to be considered as being limited thereto, extensive supportive discussion in conjunction with the related embodiments described and illustrated of the claimed invention was originally disclosed in the present application. Since no further issues are outstanding, and since the changes being made to the claimed subject matter are, basically, of a further clarifying nature including in terms of addressing the matters raised in the Final Office Action, and noting that this Amendment should render the application allowable, acceptance and formal entry therefor of this submission is respectfully requested. Reconsideration and favorable action of all of the presently pending claims and an early formal notification of allowability of the above-identified application is respectfully requested.

If the Examiner deems that questions and/or issues still remain which would prevent the present application from being allowed at the present time, he is urgently invited to telephone the undersigned representative, at the number indicated below,

so that either a telephone or personal interview may be arranged at the Examiner's convenience in order to discuss the same and hopefully resolve any remaining questions/issues present.

To the extent necessary, applicants petition for an extension of time under 37 CFR §1.136. Please charge any shortage in the fees due in connection with the filing of this paper, to the Deposit Account of Antonelli, Terry, Stout & Kraus, LLP, Dep. Acct. No. 01-2135 (500.39252X00), and please credit any excess fees to such deposit account.

Respectfully submitted,
ANTONELLI, TERRY, STOUT & KRAUS, LLP



Larry N. Anagnos
Reg. No. 32,392

LNA/dks
703-312-6600

Attachments:
Sketches A, B and C